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(54) **DIRECTED FRAGMENTATION FOR UNMANNED AIRBORNE VEHICLES**

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See application file for complete search history.

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(57) **ABSTRACT**

Directed fragmentation of an unmanned aerial vehicle (UAV) is described. In one embodiment, the UAV includes various components, such one or more motors, batteries, sensors, a housing, casing or shell, and a payload for delivery. Additionally, the UAV includes a flight controller and a fragmentation controller. The flight controller determines a flight path and controls a flight operation of the UAV. During the flight operation, the fragmentation controller develops a fragmentation sequence for one or more of the components based on the flight path, the flight conditions, and terrain topology information, among other factors. The fragmentation controller can also detect a disruption in the flight operation of the UAV and, in response, direct fragmentation of one or more of the components apart from the UAV. In that way, a controlled, directed fragmentation of the UAV can be accomplished upon any disruption to the flight operation of the UAV.

20 Claims, 7 Drawing Sheets